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Competing for Wheat Markets

Antibiotics in Animal Feeds
page 6

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PERSPECTIVES

THE PUSH FOR A MORE MARKET-ORIENTED FARM POLICY has raised a basic consumer question: What are the consequences for food supplies and prices of less federal intervention in agricultural markets?

Will consumers be the ultimate losers? Although some observers have expressed concern, studies of farm program alternatives by economists of the Economic Research Service suggest that these fears are largely unfounded. In fact, one major study concludes that a totally market-based farm policy could hold average food price increases at 2.5% to 4.5% a year through the rest of the decade. The projected increases were greater—4% to 6% a year—under an extremely protective policy that reverted to the farm programs of the 1930's and 1940's. The difference would translate into an estimated annual savings of $20 billion in consumer food costs by 1990.

Even an extension of current support levels would keep farm and food prices higher than they might otherwise be. Most forecasts indicate relatively slow demand growth and continued gains in world production for the decade ahead. If support levels were reduced, grain prices would be tied more closely to market demand, and meat prices would also be restrained through lower feed costs to livestock producers. Farm prices would eventually strengthen as supplies adjusted to demand, but analysts say that agriculture would end up more competitive, with a lower cost-of-production structure. In addition, the elimination of acreage reduction programs would bring much of the more productive land that's now idled back into production. Although some less productive land might be taken out of farming, there would be little net impact on agriculture's overall productive capacity, analysts contend.

Food price and supply concerns may actually reflect fears that scaled-down farm programs will decimate the farm sector, given its present financial troubles. Analysts respond that the human dimensions of farm failures are real and must be addressed. However, they add the following points:

- **A continuation of the decades-old trend** toward fewer and larger farms cannot be avoided without great cost. Nations that insulate their agriculture from competitive pressures must pass the costs of these programs on to consumers through higher taxes and higher food prices. Failure to make long-term economic adjustments ultimately results in less efficiency, which then requires higher levels of support.

- **Fewer farms do not necessarily mean less production.** Since 1960, farm numbers have dropped by 1½ million, yet U.S. farm production capacity is 30%-50% greater today. Just 40% of the nation's 2.4 million farms now account for more than 90% of farm output. As competitive pressures force some producers out of farming, the good farmland will be absorbed by other farms and remain in production.

- **There's no evidence that we're witnessing the demise** of the family-owned farm or the takeover of farming by nonfarm corporations. Concern that food production will soon be monopolized by a few profit-motivated giants bears little relationship to the reality of a sector that has far, far more competing firms than any other U.S. industry.

Analysts also note that many current farm bill proposals, along with recent budget decisions, allow for a gradual transition that would help cushion any structural adjustments in agriculture resulting from a redirection in farm policy.

There may be one risk to consumers: In the short run, farm prices could be somewhat more volatile if agricultural support programs are curtailed. In general, however, changes in farm prices have not been the biggest factor in past retail food price rises. In 14 of the last 15 years, food prices were affected more by rising processing and marketing costs than by changes in commodity prices at the farm gate.

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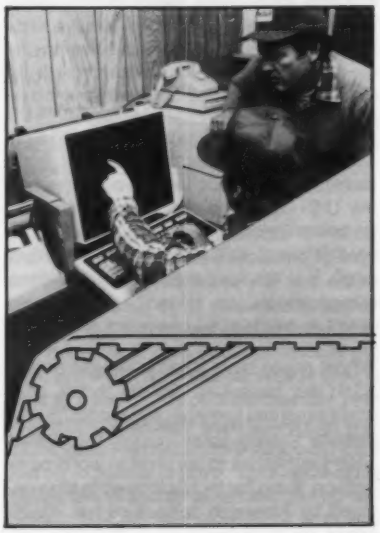
Foreign investors have added to their holdings of U.S. agricultural land during the last few years—but not by much. ERS researchers report the latest USDA figures on foreign ownership.



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Keep it handy. This is your guide to July-December release dates for situation and outlook reports of the Economic Research Service, crop and livestock reports of the Statistical Reporting Service, and supply-demand estimates of the World Agricultural Outlook Board.

U.S. Wheat Faces A World of Competition

The United States is still the world's top wheat exporter, but competition is getting fierce and U.S. farmers seem to be taking a beating.

How much of the blame belongs to the strong dollar is not clear. Analysts also cite foreign farm subsidies, world debt problems, U.S. support programs that seem to provide a price umbrella to foreign producers, and the 1980 U.S. grain embargo.

Whatever the causes, the results are clear:

- Foreign wheat production set records in 4 of the last 5 years, while U.S. wheat production dropped from its 1981 peak.
- Total wheat exports of other nations reached record highs in 8 of the last 10 years, while the United States watched its exports fall below previous records in 7 of the last 10 years.
- The U.S. share of world wheat trade recently dropped below 40 percent for the first time since 1971. From 1975 to 1980, the U.S. share averaged 44 percent, and reached as high as 48 percent in the record export year of 1981.

Given the dependence of U.S. farmers on exports, these developments have left their mark. Domestic wheat demand is fairly stable, but it usually takes well under half the U.S. crop. The rest must go into exports—or into storage. About 55 to 60 percent of production entered world markets in the last few years, but that still left the United States with large stockpiles—and U.S. farmers with low prices.

Wheat prices have fallen from an average $3.91 per bushel in 1980/81 to this season's expected average of about $3.35. Yet despite sharply lower prices, the United States continues to fall short in world competition. Even the technology edge long enjoyed by American agriculture has diminished as high technology farming has become more widely adopted abroad.

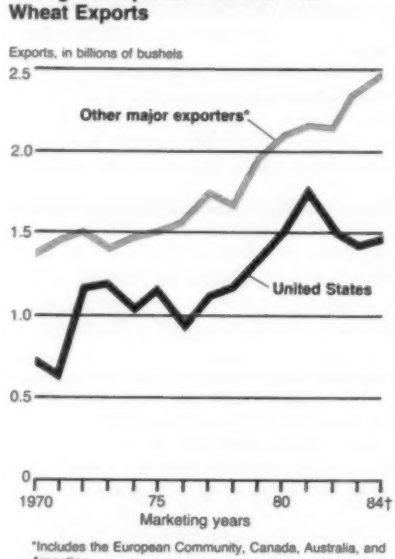
"If anything, the competition among exporting countries could intensify through the rest of the 1980's, particularly if global wheat trade grows as slowly as expected," says economist Allen Schienbein of the Economic Research Service. World wheat consumption and trade will set new records, Schienbein explains, but the big U.S. export gains of the past will be tougher to achieve unless a major competitor suffers an unforeseen crop disaster.

Will the slight rise in world trade that's anticipated mostly benefit America's four major export competitors—the European Community (EC), Canada, Australia, and Argentina? Many analysts are reluctant to speculate, although they do agree that the competition isn't likely to relax.

Argentina: Number Five and Growing

Argentina is expected to export about 272 million bushels of wheat in 1984/85, or around 60 percent of its 467 million bushel crop. That's up from just 85 million bushels in 1970, although it is below 1983's record of 353 million bushels. The major reason for the decline in wheat exports is lower production. Many farmers have switched from double cropping wheat with soybeans to growing only early-planted soybeans in response to government policies and improved financial returns.

Foreign Competition Batters U.S. Wheat Exports



*Includes the European Community, Canada, Australia, and Argentina.
†Preliminary.

The economic problems in Argentina represent a threat to its agriculture, explains ERS economist Jorge Hazera, a specialist on Argentina's agriculture. "Wheat farmers may help dig the country out of its economic crisis, but only if the crisis does not first overwhelm them," he adds. Some of Argentina's problems: 700 percent annual inflation in 1984, an unwieldy $45 billion foreign debt, low prices for agricultural products, and a lack of farm credit.

Wheat producers are also subject to the risk of changing government policies. To reduce this risk, farmers usually plant several crops, Hazera says. For example, the government could raise the export taxes on wheat relative to other crops and, thus, make wheat less profitable than corn or soybeans.

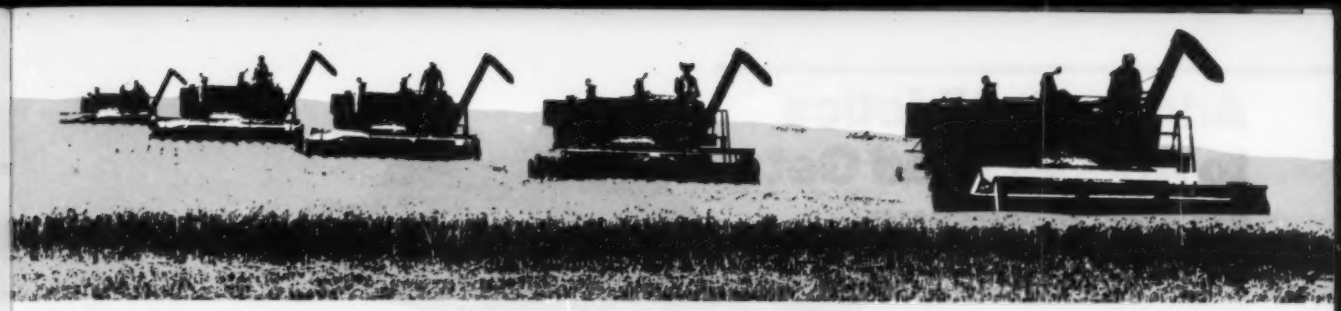
Wheat farmers also reduce risk by using as few inputs as possible in order to keep costs down, relying on crop rotation to care for their soils.

Only 15 percent of Argentine wheat farmers use fertilizer—compared with 75 percent of U.S. wheat farmers. The Argentine government is encouraging fertilizer use with subsidies. But, says Hazera, "Why should Argentine farmers interrupt a 7-year rotation scheme when the fertilizer program may only last a few years and export taxes could increase?"

However, the news is not all bad for Argentine wheat farmers. Although they apply few inputs, their yield is still third highest among the largest exporters. Hazera explains that this is because Argentina is blessed with generally good farmland and weather.

The government has attempted to bolster wheat production by trying to balance the need for tax dollars with the farmer's need for higher prices. The new government, elected in 1983, reduced the export tax on wheat from 25 to 18 percent of the export price.

"For wheat, Argentina's greatest production increases will come from fertilizer use and increased yields," says Hazera. Given the balancing act that the government must perform to increase output and generate



revenues and the growth of soybean area, Argentine wheat exports are not expected to increase dramatically.

Down Under: Australia

Australia is expected to export about 560 million bushels of wheat in the current 1984/85 marketing year, over 80 percent of its 680 million bushel crop. In 1970, exports were 350 million bushels. Currently, says ERS economist Allen Johnson, Australia sits at fourth place in world wheat exports.

Australia has one major wheat farming problem: Rainfall is minimal and highly variable from year to year, which results in large swings in output. Australia's parched climate limits the wheat producing areas, and irrigation is not a viable alternative. The arid climate also holds down yield, which at 21 bushels per acre is the lowest of the top five exporters.

Researchers are exploring improved wheat varieties better suited to Australian growing conditions. Some analysts see great potential for high-yielding, low-protein varieties for livestock feed, according to Johnson. To supplement this technology, farmers are becoming better managers. "Because of the critical moisture problem, it is vital that fields be planted quickly and harvested immediately after the crop has ripened to reduce loss. Thus, tight management combined with large efficient machinery is necessary," he adds.

Australian farmers benefit from a central selling agency, the Australian Wheat Board. The board has helped Australian wheat exports to more than double in the past two decades. Sales are made directly to government purchasing authorities as well as through private traders.

To the North: Canada

Canada, the third largest exporter, harvested about 779 million bushels in 1984/85, and exports are expected to reach about 630 million bushels. Canada has traditionally been the second largest exporter, but its exports are unusually low this season because of poor weather. In 1983, bumper crops pushed exports to a record-breaking 801 million bushels.

Competitors Pursue America's Number One Spot in Wheat Exports[1]

	Production	Exports
	millions of bushels	
United States	2,596	1,475
European Community	2,793	995
Canada	779	632
Australia	680	560
Argentina	467	272

[1]Based on 1984/85 production and exports.

Bad weather is often the bane of Canadian wheat farming, where drought and harsh winters can devastate crops, says ERS economist Carol Goodloe. As a result of the climate, Canada's yield of around 24 bushels per acre is the fourth lowest of the top five producers—although 1984 was an especially bad year for Canada. And, if varieties are developed that better resist cold and drought, Canada could improve its low yield, according to Goodloe.

"Recently, about 5 percent of Canadian farmers have switched to hardy winter wheat varieties that can survive the cold winter and increase yields well beyond the more commonly grown spring wheat. Some analysts believe 20 percent of Canadian wheat area could be planted with the higher yielding winter wheat varieties by the end of the decade," Goodloe says.

Canadians are also learning how to better manage their low-moisture, heavily farmed land, says Goodloe. For example, to help retain soil moisture, they are experimenting with snow management in which straw or stubble are left on the fields to catch snow.

Canada's ability to expand planted area, combined with improved soil management practices and better wheat varieties, means more export competition for U.S. wheat farmers. Goodloe believes Canadian exports will probably continue to increase slowly but steadily through the next 10 years. Also available to Canadian farmers is their centralized selling agency, the Canadian Wheat Board, which will continue to try and make long-term sales arrangements to ensure farmers a constant export market.

EC Wheat: Aiming for High Production

The European Community has experienced consistent growth in production and exports for over 20 years. This season is no exception. Record-breaking 1984 production reached nearly 2.8 billion bushels, with about 995 million bushels available for export.

EC wheat—produced mostly in France, the United Kingdom, West Germany, and Italy—is an example of high-intensity farming where inputs are poured on to deliver the best yield of all major wheat exporters—about 80 bushels per acre, more than double the U.S. yield. "EC wheat farmers may fertilize their crop up to five times a year," says EC specialist Ron Trostle, an ERS economist. And to top it off, the EC can generally count on good weather for growing wheat.

But Trostle points out that high yields and the EC's place as the second largest exporter are only side effects of a domestically oriented agricultural policy. "The EC provides high prices to support the incomes of the typical small-sized farms. In response to the high prices, farms produce more wheat than Europe consumes, and this leads to exports," he says. "But the exports are only incidental to their agricultural policy."

Even if EC exports are merely the end result of income support policy, they still cause problems, and competition, for U.S. farmers. "Unless there's an unforeseeable change in the world wheat market, yields will continue to rise about 2 percent per year in the EC. Because population growth is only three-tenths of 1 percent per year and wheat is already used heavily as livestock feed, the demand within the EC cannot be expected to grow. Thus, increasing yields will probably mean increasing exports," Trostle says. And more competition for U.S. farmers. □

[Based on information provided by economist Allen Schienbein of the National Economics Division; and economists Carol Goodloe, Jorge Hazera, Allen Johnson, and Ron Trostle of the International Economics Division, Economic Research Service.]

Adding Antibiotics to Animal Feed Gets Mixed Reviews

It's been called a hazard to human health, and defended as a necessary agricultural practice.

The issue is the use of antibiotics in animal feed—not for treatment of a diagnosed disease, but as a regular part of the animal's diet. Added to poultry, hog, or cattle feeds in low-dose, subtherapeutic levels, certain antibiotics such as penicillin and tetracycline are effective in preventing disease and promoting growth.

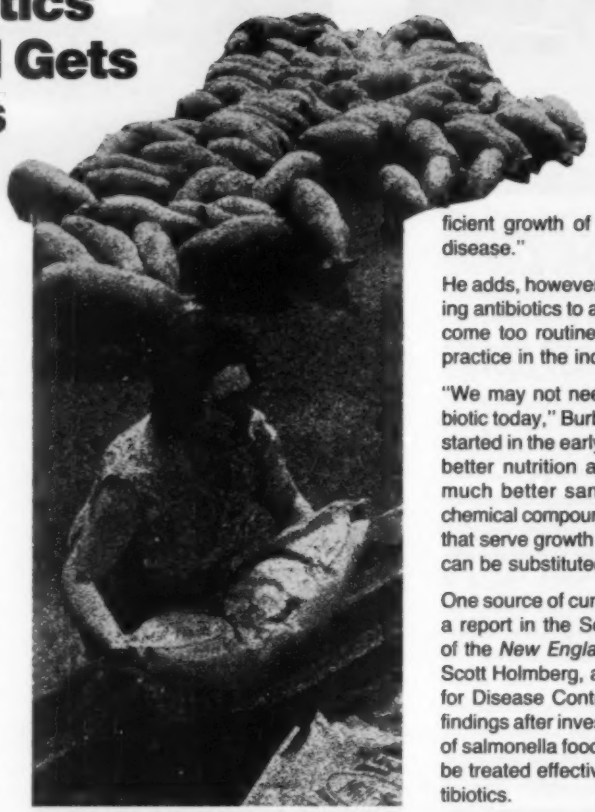
Although it's widespread, the practice has long been a controversial one, prompting a number of scientific inquiries.

Some scientists have concluded that the use of certain antibiotics in animal feed can result in the emergence of disease-causing bacteria that are resistant to antibiotics.

Such strains of bacteria, say these scientists, could cause serious outbreaks of infectious diseases—diseases that would be difficult to treat quickly and effectively with the antibiotics available today.

But more questions are being asked than can be answered, says economist Clark Burbee of USDA's Economic Research Service.

The available research has provided no certain conclusions. Some queries are centered on the actual existence of an animal-to-human link. Could these resistant bacteria affect anyone who eats improperly prepared animal products—or simply those who handle such products or have physical contact with livestock? Other questions are more basic, focusing on whether low-level antibiotic use in animals can even promote growth of antibiotic-resistant bacteria in large numbers—and whether such bacteria can be transmitted to, and survive in, humans.



More questions are being asked about the animal-to-human health link than can be answered.

The practice of adding antibiotics to animal feed may have become too much a part of routine practice.

Antibiotics Battle Disease

The questions are important, obviously, because of the major reliance on antibiotics in the treatment of life-threatening, as well as less dangerous, infectious human diseases.

Penicillin and its derivatives effectively combat a whole host of infections—meningitis, certain forms of pneumonia, strep and staph infections, and some venereal diseases. Other infections, such as those affecting the urinary tract, the eye, and the gastrointestinal tract, are effectively treated with tetracycline, says the Food and Drug Administration.

Penicillin and tetracycline are also two of the most widely used antibiotic feed additives, according to the Animal Health Institute, located in Arlington, Virginia.

"Drugs are used in animals for many of the same reasons they are used in humans," says Burbee. "No one wants animals to be sick or suffer, and it's just bad economics not to keep them as healthy as possible. Antibiotics are one tool to promote the efficient growth of animals and to prevent disease."

He adds, however, that the practice of adding antibiotics to animal feed may have become too routine, an excessively regular practice in the industry.

"We may not need to feed as much antibiotic today," Burbee says. Since such use started in the early 1950's, "livestock enjoy better nutrition and are produced under much better sanitary conditions. Other chemical compounds have also come along that serve growth promotion purposes and can be substituted for antibiotics."

One source of current concern comes from a report in the September 6, 1984, issue of the *New England Journal of Medicine*. Scott Holmberg, a doctor with the Centers for Disease Control (CDC) presented the findings after investigating a 1983 outbreak of salmonella food poisoning that could not be treated effectively using prescribed antibiotics.

Research revealed that all but one of the patients had eaten beef that was raised on a small farm in South Dakota. Although none of the "suspect" meat was available for examination, Holmberg says the only other reported outbreak of this strain of salmonella had been on "a farm adjacent to the farm of the beef herd."

The South Dakota cattle had been fed subtherapeutic levels of chlortetracycline (a tetracycline derivative) to help them grow faster. Holmberg and other CDC scientists say they believe the use of tetracycline helped select out a particular strain of bacteria that could not be treated by the drug.

However, the chemical and livestock industries and others have challenged the study as inconclusive. They point out, for example, that the resistant bacteria strains were never isolated at the suspect feedlot.

The FDA Connection

In 1977, the Food and Drug Administration (FDA) proposed regulations to prohibit the subtherapeutic use of penicillin in animal feeds and restrict the use of tetracyclines. The regulations would also have imposed

restrictions on the distribution and use of the remaining applications of penicillin and tetracycline. Congress, however, directed FDA to conduct further studies to determine if a definite link could be established between antibiotic use and human health. Some now believe that link has been made with the Holmberg study.

Several consumer and public-interest groups, citing the Holmberg report, have pressed particularly hard for a ban on antibiotics in animal feed. Late last year, the Natural Resources Defense Council filed a petition with the FDA seeking such a ban. A hearing on the petition was held in January, but no action was taken.

For its part, FDA has been conducting a comprehensive review of the issue with an eye to recommending whether or not penicillin and tetracycline antibiotic use should be restricted. The agency has commissioned several studies on the matter.

FDA's Center for Veterinary Medicine will weigh these studies, as well as other available data and scientific literature published in recent years. Its decision on what action, if any, to take will probably not be made before this summer.

Unless FDA declares the uses of penicillin and tetracycline to be imminent health hazards, FDA proposals to ban or restrict their use could be contested for many months under a federal review process. Such regulations could also be challenged in the courts.

And even if FDA makes the imminent hazard determination, Burbee sees some serious problems ahead.

An Enforcement Problem?

"There's a real problem of compliance and enforcement. The same drugs will be avail-

The Costs of Banning Antibiotics

Whether health concerns are justified or not, banning the use of antibiotic feed additives now could cause a significant shakeup in the livestock industry's production practices and the consumer marketplace.

"Consumers would likely pay slightly higher prices for smaller supplies of meat," says Burbee. "The practical effect of even a partial ban would mean that it would take longer to produce some meat animals because they wouldn't grow as fast. Imports would probably also increase, which would dampen some of the possible rise in prices."

In addition, he says, the cost of feed grains might go up because animals would have to eat more to gain the same amount of weight. The availability of large excess supplies of feed grains should keep any rise to a minimal level.

"However, higher consumer prices would more than offset farmers' higher costs, and farm income might actually go up," Burbee says.

He adds that "equilibrium in prices would be reached in a year or two, but at a higher level. Right now, animal producers are presumably operating at a least-cost level because penicillin and tetracycline are two of the cheaper drugs available. But there are substitutes, other antibiotics and feed additives that can usually be used for the same purposes, although they are probably more expensive and not quite as effective."

Some cattle feeders have voluntarily cut back on antibiotic use.

According to the Animal Health Institute located in Arlington, Virginia, producers purchased $271 million worth of antibacterial feed additives (which include antibiotics) in 1983, the latest year for which figures are available.

A 1981 study by the Council for Agricultural Science and Technology (CAST) nails down other numbers involved. It says a cost of $3.5 billion to consumers in increased meat prices would result from the banning of all animal uses of penicillin and severe restrictions on the use of tetracycline in feeds.

Burbee says another analysis—using new data on drug use and costs of substitute products and production methods—is necessary before a "definitive statement about today's cost impacts can be made."

In fact, Burbee is looking at the economic impact of proposals to restrict or ban the use of some antibiotics. He says his findings will be released later this year.

Cattle feeders are not as dependent on antibiotics as pork producers.

able for human and animal uses. Some producers may find a way to acquire and use them in feed for growth promotion purposes without being detected," he says. "Also, there is the issue of determining whether foreign suppliers of live animals or processed meat products will actually comply with our rules on drug use. Currently, the United States imports over a million head of hogs a year for slaughter, and tens of millions of pounds of processed beef and pork products."

The rules abroad can vary. Some foreign governments, concerned about possible effects on human health, have already imposed limits on the amounts of antibiotics livestock producers can use in feed. In 1971, for example, the United Kingdom took such an action. Generally in Europe, most antibiotics that are used in treatment of humans are available for use in animals only on veterinary prescription, and only antibiotics solely approved for animal use are used in feeds without a prescription.

Other countries such as Canada (and Mexico and Japan to some extent) use antibiotics in feed on a nonprescription basis.

All the talk about the possible risks of antibiotic feed use has led members of at least one industry group—cattle feeders—to voluntarily cut back. Earlier this year the world's largest cattle feeder, Cactus Feeders Inc., headquartered in Dumas, Texas, terminated the use of tetracycline.

There is a good reason for the industry action—image.

"If safety becomes a burning issue, consumers could certainly restrict their purchases of meat products," Burbee says. "On the other hand, if safety becomes a positive selling point, purchases may expand and the industry would benefit."

Pork Producers More Dependent

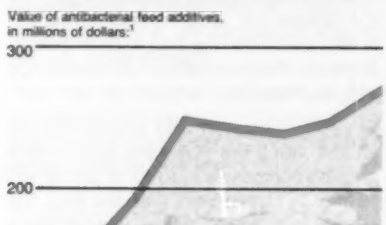
Neither cattle feeders nor poultry producers are as dependent on the antibiotics in question as pork producers.

It's estimated that about three-fourths of the slaughter hogs in the United States receive low levels of tetracycline and penicillin in feed. One reason is that modern, cost-efficient swine production requires large numbers to be raised in close confinement —and hogs are very prone to respiratory ailments that restrain growth.

In general, however, antibiotic use may actually be going down. "There's been a flattening-out in antibiotic use because producers are becoming less reliant on these compounds, given the better sanitation and nutrition in the livestock industry and the need to cut out any unnecessary costs," says Burbee.

"The eventual answer may be found in newer chemical compounds. This could take as few as 5 years, or it may be as far away as 15 years. But certainly before the turn of the century, we'll find newer drugs and chemical compounds that have minimum side-effects or fewer hazards. Biotechnology will certainly provide many new substances that are safer, more effective, and less expensive."

Growth in Use of Antibacterial Feed Additives Seems to Be Leveling Off



[1]Antibacterial feed additives include antibiotics and other antibacterial agents.

Source: Animal Health Institute

It's already happening, to a limited extent. "An example is growth hormones that are being tested for cows, hogs, and poultry. Another is a compound that prevents scours (diarrhea) in calves and pigs," Burbee notes.

Furthermore, he says, "there are good prospects for more developments in nutrition, housing, and management that will promote animal health, which will in turn decrease the reliance upon antibiotics for growth promotion and disease prevention." □

[Based largely on information provided by economist Clark Burbee of the National Economics Division, Economic Research Service.]

Diversification of U.S. Food Firms

Many companies in most U.S. industries choose a strategy of diversification. Food manufacturers are no exception, according to economist James MacDonald of the Economic Research Service.

He reports that a significant number of major food firms have diversified into such product areas as metals, lumber, furniture, plastics, chemicals, machinery, paper, textiles, and transportation. Others have widened their base of operations by increasing the variety of food products they offer, or by expanding into food-related businesses.

In 1975, companies that ranked among the 200 largest U.S. food manufacturers had more than $50 billion in estimated shipments of manufactured nonfood items—18 percent of their total shipments. Drugs, toiletries, and other chemicals accounted for almost 40 percent of the shipments of manufactured nonfood items.

Still other diversification strategies involve food-related businesses. In 1977, 58 of the 500 largest food manufacturers had restaurant or fast food chains, up from 25 in 1967. By the same year, 256 of the top 500 had expanded into food wholesaling, up from 187.

A number of food manufacturers entered specialty retail fields, where their consumer marketing expertise in food could be applied. Quaker Oats, for example, acquired and expanded chains of retail eyeglass, hardware, and yarn stores.

Although some firms diversified from food manufacturing into convenience and specialty foodstores, none had acquired supermarket chains. However, some major supermarket chains, such as Safeway and Kroger, operate significant food processing facilities.

Diversification among U.S. food manufacturers increased steadily between 1919 and 1972. From 1972 to 1977, the extent of diversification seemed to stabilize. Then, merger activity resumed, but MacDonald notes that the recent pattern suggests a movement away from investment in nonfood industries, an area where food manufacturers may have little expertise.

"Product diversification carries clear risks, since many diversified ventures are later divested," he says. "Unless a diversifying firm has some skills which can be used in the new business . . . there is no reason to believe that a merged firm in a new industry . . . will be a profitable acquisition."

Product Diversification Trends in U.S. Food Manufacturing *by James M. MacDonald. (Published March 1985; 45 pages of text and data tables; GPO Stock No. 001-019-00375-8; $2.25.)*

American Food in the British Marketplace

Several U.S. food products from soup to nuts could be better sellers in the British market.

Among the items with good export potential are variety meats, edible tree nuts, peanuts, dried vegetables (for use in soup and other foods), dried and fresh fruit, selected grain products, and rice.

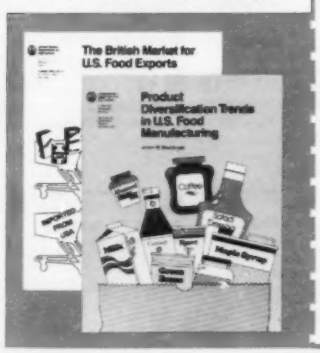
"These products are promising despite the problems posed by the European Community's import barriers and by heavy competition from Mediterranean and developing country suppliers," says economist Harold McNitt of USDA's Economic Research Service.

According to a report authored by McNitt, the U.S. should be able to boost food sales to Britain beyond the $310 million annual range reached in recent years.

"Changes in the British lifestyle have sharply altered patterns of food demand, enhancing interest in highly processed convenience foods and fresh produce," says McNitt.

He draws these conclusions from a number of demographic shifts at work in British society, including "the growth of small households, the increase in married women working outside the home, and the large group of persons aged 15 to 29 years old."

The British Market for U.S. Food Exports *by Harold A. McNitt. (Published January 1985; 38 pages of text, charts, and tables; GPO Stock No. 001-019-00374-0; $2.25.)*



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1985 Reports Calendar

July-December

Titles of Outlook and Situation reports of the Economic Research Service are printed in color. Summaries of reports are released at 3 p.m. on the dates shown. Copies of complete reports are due off press within a week. The World Agricultural Supply and Demand Estimates

JULY

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
1 *Egg Products* *Poultry Slaughter*	2 *Dairy Products*	3	4	5 *Celery*
8 *Noncitrus Fruits & Nuts—Midyear Supplement*	9	10 *Crop Production* *Grain Stocks* *World Agricultural Supply & Demand*	11 *Mink*	12 *Turkey Hatchery*
15 *Sub-Saharan Africa*	16 *Milk Production*	17 *Agricultural Outlook*	18 *Economic Indicators of the Farm Sector*[1]	19 *Vegetables* *Catfish*
22 *Cold Storage* *Cattle* *Cattle on Feed* *Livestock Slaughter* *Oil Crops Yearbook*	23 *Farm Production Expenditures, 1984* *Eggs, Chickens, & Turkeys*	24	25 *Peanut Stocks & Processing*	26
29	30 *Egg Products* *Livestock & Poultry*	31 *Agricultural Prices*		

AUGUST

MONDAY	TUESDAY	WEDNESDAY
5	6 *Celery*	7
12 *Crop Production* *World Agricultural Supply & Demand*	13 *Mushrooms* *Turkey Hatchery*	14 *Vegetable*
19 *Agricultural Outlook*	20 *Cranberries* *Farm Labor* *Wheat*	21 *Catfish* *Export*
26 *South Asia*	27	28

OCTOBER

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
	1 *Poultry Slaughter*	2	3 *Dairy Products*	4 *Cherry Utilization* *Celery* *Livestock & Poultry*
7	8	9 *Vegetables*	10 *Crop Production* *Soybean Stocks* *World Agricultural Supply & Demand*	11 *Turkey Hatchery*
14	15	16 *Milk Production* *Econ. Indicators of the Farm Sector*[1]	17	18 *Agricultural Outlook*
21 *Catfish* *Fruit Yearbook*	22 *Eggs, Chickens, & Turkeys* *FATUS*[2]	23	24 *Peanut Stocks & Processing*	25 *Livestock Slaughter* *Cattle on Feed* *Cold Storage*
28	29	30 *Egg Products*	31 *Agricultural Prices*	

NOVEMBER

MONDAY	TUESDAY	WEDNESDAY
4 *Dairy Products*	5 *Celery*	6
11	12 *Crop Production* *Grain Stocks* *Rice Stocks* *World Agricultural Supply & Demand*	13 *Turkey Hatchery*
18 *Cotton & Wool*	19 *Farm Labor* *Agricultural Outlook*	20 *Catfish* *Oil Crops*
25	26 *Peanut Stocks & Processing*	27 *Commercial Fertilizers, Consumption*

[1]Series includes: Costs of Production, July 18; Farm Sector Review, Aug. 22; Income and Balance Sheet Statistics, Sept. 23; State Income and Balance Sheet Statistics, Oct. 16; and Production and Efficiency Statistics, Dec. 19. [2]Foreign Agricultural Trade of the United States.

reports, issued by the World Agricultural Outlook Board, are also printed in color. These reports are released to the press in their entirety on the dates shown. To request subscription information on any of these reports, write: EMS Information, Room 440 GHI Bldg., USDA, Washington, D.C. 20250.

Titles of reports issued by the Crop Reporting Board of the Statistical Reporting Service are printed in black. Complete reports are released, most at 3 p.m., on the dates shown. To request subscription information, write: Crop Reporting Board, Room 5829 South Bldg., USDA, Washington, D.C. 20250.

SEPTEMBER

EDNESDAY	THURSDAY	FRIDAY
	1 Poultry Slaughter Inputs, Machinery & Energy	2 Dairy Products
7	8	9 Vegetables
14 etable	15 Sugar Market Statistics Milk Production FATUS[2]	16 Feed
21 fish ort	22 Eggs, Chickens, & Turkeys Econ. Indicators of Farm Sector[1] Cotton Yearbook	23 Livestock Slaughter Cattle on Feed Cold Storage Fruit
28	29 Peanut Stocks & Processing	30 Egg Products Agricultural Prices

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
2	3 Poultry Slaughter	4 Dairy Products	5	6 Celery
9	10 Vegetables	11 Crop Production Rice Stocks World Agricultural Supply & Demand	12 Turkey Hatchery	13 Milk Production Tobacco
16	17 Rice	18 Hop Stocks Agricultural Outlook	19 Sugar & Sweeteners	20 Citrus Fruits Catfish Dairy
23 Hogs & Pigs; Cattle on Feed; Cold Storage; Livestock Slaughter; World Agriculture; Econ. Indicators of the Farm Sector[1]	24 Eggs, Chickens & Turkeys	25 Peanut Stocks & Processing Cropland	26	27 Potatoes & Sweetpotatoes
30 Egg Products Agricultural Prices				

DECEMBER

EDNESDAY	THURSDAY	FRIDAY
		1 Poultry Slaughter
6	7	8
13 key tchery	14	15 Sugar Market Statistics Milk Production
20 fish Crops	21 Eggs, Chickens, & Turkeys	22 Livestock Slaughter Cattle on Feed Cold Storage
27 mmercial Fertilizers, Consumption	28	29 Agricultural Prices

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
2 OUTLOOK CONFERENCE Egg Products Poultry Slaughter Export	3 OUTLOOK CONFERENCE Dairy Products	4 OUTLOOK CONFERENCE	5 Celery	6
9	10 Crop Production World Agricultural Supply & Demand	11 Tobacco Yearbook	12 Turkey Hatchery Feed Yearbook	13 Potato Stocks Milk Production FATUS[2]
16	17 Agricultural Outlook	18	19 Catfish Econ. Indicators of the Farm Sector World Agriculture	20
23 Eggs, Chickens, & Turkeys; Hogs & Pigs; Cattle on Feed; Cold Storage; Livestock Slaughter; Agricultural Finance	24	25	26	27 Peanut Stocks & Processing
30 Vegetables, Preliminary	31 Agricultural Prices			

Technology: The Treadmill of Agriculture?

Modern machinery, miracle seeds and breeds, and an arsenal of fertilizers and pesticides haven't protected many farmers from a dose of economic troubles.

If progress and prosperity go hand in hand, why do "hard times" periodically come to the most innovative, technologically advanced farm sector in the world?

Much of the answer, of course, has little to do with technology, but part of it requires an understanding of the role and impact of technology in the farm sector.

Technology is a cornerstone of U.S. agriculture's great productive capacity. It has meant an abundant, low-cost food supply for consumers. It gives American farmers a competitive edge in world markets that helps offset the strong dollar, higher labor costs, and other economic disadvantages.

As farmers know, however, it provides no guarantee of profits. In fact, technological change may itself carry the seeds that undermine the initial profit advantage it creates.

Twenty years ago, economist Willard Cochrane described the financial, structural, and market effects of technological change in the farm sector. Cochrane, then a University of Minnesota professor and former USDA director of agricultural economics, called it the "treadmill of agriculture."

It's a process that can keep farmers running without allowing many of them to get ahead financially. It works like this: Those who first adopt a new technology reap higher profits through lower costs per unit of output. That provides them with the motive and the opportunity to increase production, often by expanding the size of their operations. The potential for higher profits attracts others to the technology. Soon, the spread of the technology affects overall supplies and prices, the value of land, and prices of production inputs.

Eventually, Cochrane wrote, the "income gains to farmers are wiped out, and farmers are back where they started, in a no-profit position."

Technological change may itself carry the seeds that undermine the initial profit advantage it creates.

A Model of Change

More recent studies by Cochrane (now retired) and other analysts have expanded on this theme of who gains, who loses, and why investment in new technologies does not ensure a more prosperous farm sector.

One of the latest contributions on this subject comes from economist Lloyd Teigen of USDA's Economic Research Service. Teigen's approach was to construct an economic model (basically a series of equations) to simulate the effects of technological change as a new technology is introduced and becomes more pervasive.

His model starts out with 100 farms in an economic environment that is assumed to have the same competitive pressures and basic relationships among supply, demand, and price as those in U.S. agriculture. All the farms initially use a traditional technology.

Teigen then disrupts this stable equilibrium by introducing a new technology into his model, a technology that he says might be likened to a mechanical improvement such as a tomato harvester. At first, one farm adopts the technology, which allows it to increase its output using less labor but more land and chemicals. The innovating farm realizes a much higher profit despite increased spending for production inputs.

The "catch 22," Teigen says, is that, sooner or later, prices will adjust. Adoption of the new technology increases the supply of the product and reduces its market price. Meanwhile, the greater demand for land and chemicals raises their prices. "The altered prices affect everyone in the system," he notes. Those who haven't adopted the technology have difficulty competing with the early innovators, who use their temporary advantage to bid away land and other resources from the more traditional farms.

As additional farms adopt the technology, the profits of both the innovators and the traditional farms drop, as does total net income in the industry. In each stage, only those adopting the technology at that point realize an increase in profits, Teigen says.

Leaping Ahead, Coming Out Behind

By the time 40 percent of the farms adopt the new technology in Teigen's simulation, the average profit to each of the innovators is less than the profit they made prior to the introduction of any change. Yet this doesn't end the appeal of the new technology. The incentive to adopt it remains, he explains, because profits have fallen even more for the farms still clinging to the traditional technology.

"By the time around half the farms in the industry have shifted from the traditional into the innovator category, profits fall below the level needed to keep farms in the industry," says Teigen. "When that happens, someone drops out, releasing resources to the others. The remaining farms expand, but they cannot completely make up for the lost production from the exiting farms. The industry's overall output stops climbing and begins to decline. As a result, prices for its products stop dropping and begin to rise."

Both the innovators and the traditional farms then experience an increase in profits, and the industry's total net income grows for the first time since the process began. Of course, the upturn is brief. The pattern of declining profits and income quickly resumes as farms continue to adopt the technology.

"When profits drop below the threshold again," Teigen adds, "more farms drop out and the process repeats itself."

And so it goes, he says. "Technological change expands industry output and reduces prices and profits, while structural change works in the opposite direction. It reduces the number of farms and the product supply, thus raising both industry income and profits. The combination leads to fewer and larger farms whose profits converge to the threshold at which farms leave the industry."

Technological change in agriculture creates a need for additional change as wider adoption drives down prices and profits. The ultimate beneficiary is the consumer.

When Teigen's model reaches a new equilibrium—the point at which no further change occurs—only 88 of 100 farms remain. All have adopted the new technology. Total income of the industry is substantially lower than it was when change was first introduced, but the income is divided among fewer farms.

Output per farm is up sharply, yet output for the entire industry is only slightly higher than it was when there were 100 farms. The price of the product is down, while land and fertilizer prices are much higher than they were at the beginning of the process.

Illustrating Real-World Effects

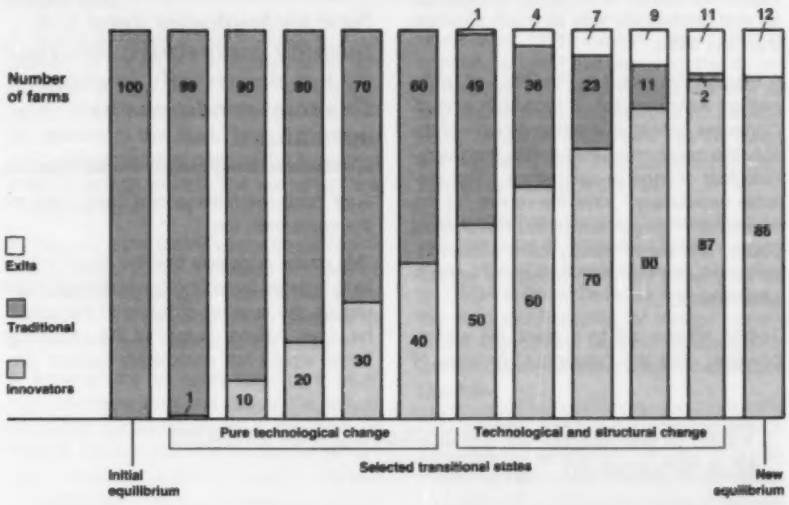
Teigen cautions that this is a simple, one-dimensional model, and technological change is a continually evolving process that interacts with many other economic, political, social, and institutional variables. Despite these limitations, his model helps illustrate the real-world implications of technological change in agriculture.

"In a competitive industry like agriculture, the gains from strategic information and innovation are never permanent," he says. "For that reason, technological change is like a narcotic. It creates a need for additional change because all subsequent people who adopt the new technology will be driving down your prices and your profits."

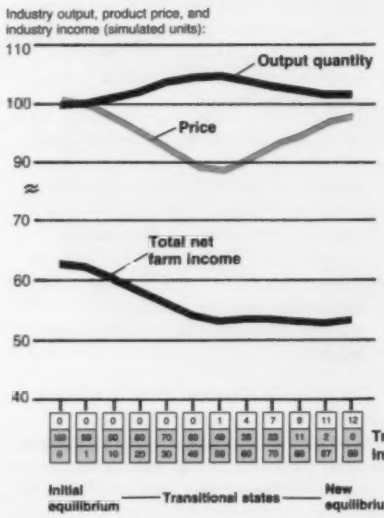
Although it may seem ironic, it's true, he says: Technological change is necessary to maintain the competitiveness of the individual producer and U.S. agriculture as a whole. It does not necessarily improve the financial conditions of those who embrace it.

Nevertheless, most analysts agree that the process does leave some winners in its wake, including the farmer who is quick to recognize and incorporate the best of the new cost-cutting technologies. "In the long term, the rewards will go to those farmers who ride the crest of each new technology, not those who adopt a technology and then hope to rest on their laurels," says Teigen. Owners of land and other assets also tend to benefit as the additional productivity of assets is capitalized into asset values. This

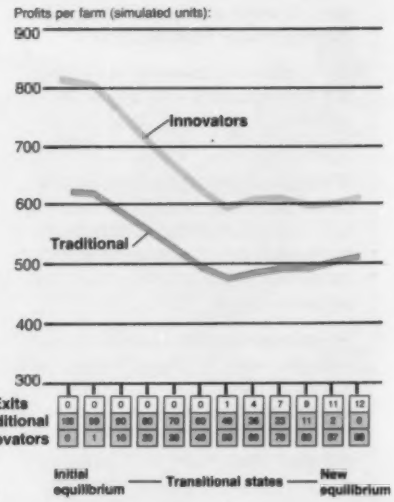
Teigen's Model Illustrates the Impact of Technological Change in Agriculture and How It Usually Brings Structural Change As Well



As the Technology Spreads, Industry Output Climbs and Price Falls Until Some Farms Are Squeezed Out; Total Industry Income Ends Up Lower Than It Started



Although Innovators Maintain a Profit Advantage, Profits Drop as More Farms Adopt the New Technology; In the End, Profits Are Back Near Where They Started When All Farms Were Traditional



Solar energy is helping to bring higher profits to some farmers, but the technological treadmill of agriculture isn't likely to end.

happened during the 1970's when demand for that productivity was so much stronger than it is today.

A March 1985 report by the Office of Technology Assessment, a research arm of Congress, identifies another group—probably the major one—that profits from technological change in agriculture. "The ultimate beneficiary," says the report, "is the consumer. Larger supplies, lower food prices, and better quality have almost invariably been the main results of agricultural research."

Teigen agrees, up to a point. He warns, however, that the "shakeout" process of

New technologies keep U.S. farming competitive, but they do not necessarily improve financial conditions in agriculture.

farm business failures can carry risks for the consumer, too.

"My model suggests that the structural effects induced by technological change might reduce the number of farms to the point," he says, "where output of the remaining farms would not completely replace production from the original group. That could mean a smaller quantity of food on the market and, eventually, a higher price to consumers. In other words, what technology gives, structural change may take away."

Teigen maintains that the hazards of too much—or too rapid—structural change may be just as great as the risks of too protectively isolating agriculture from the forces of change. □

[Based on information provided by economist Lloyd Teigen of the National Economics Division, Economic Research Service.]

The Treadmill of Technology Changes the Shape of Agriculture

If the impact of technological change can be compared with a treadmill that keeps the farmer running just to stay even, it might also be said that all this running has given the farm sector a new shape.

"One major result of technological change," says economist Lloyd Teigen, "is fewer and larger farms. Another is greater specialization."

The relationship between technology and farm structure was addressed in some detail by former Economic Research Service economist Yao-Chi Lu.

"Probably the most important factor contributing to structural change in U.S. agriculture since 1940 has been technology, which provided the technical means for structural change," Lu wrote in a 1979 USDA report.

He pointed out that mechanical technologies, such as grain combines and automated milking parlors, made larger farm sizes possible. Moreover, the capital requirements of these technologies often made them accessible primarily to the larger farms, which were then in a position to expand further.

The generally less-expensive biological and chemical technologies do not discriminate as much between large and small farms, but they, too, have had an impact on the structure of agriculture. Lu observed that these technologies encouraged specialization in agriculture, eliminating much of the need for crop rotations and crop-livestock combinations.

"To conserve fertility, prevent erosion, reduce insect infestation, and control weeds and disease, farms traditionally used crop rotation systems. Most of these functions have now been replaced by biological-chemical technologies such as chemical fertilizer, insecticides, herbicides, and new disease-resistant varieties of crops," he wrote.

"Another biological-chemical technology that encouraged specialization was disease control. Farmers formerly used diversification to reduce disease risk. Disease-control technology made specialization in broiler and egg production possible; antibiotics made confinement hog production possible."

Lu reasoned that the adoption of any cost-reducing technology encourages a farmer to invest more resources in the commodity using that technology, further spurring specialization. The mounting capital and skill requirements of the new technologies, he said, also raise the barriers for those who want to enter farming.

"In general, technological change benefits society as a whole, but the economic gains from new technology are not shared equally by all members . . . Consumers benefit most," he wrote.

"Although farmers in general do not benefit from technological change, the larger, progressive ones can benefit from a new technology through early adoption. Adoption lags . . . systematically favor the larger farms . . . because it is more profitable for large farms than for small farms to invest in acquiring information."

American Land in Foreign Hands

Foreign investors have added to their holdings of U.S. agricultural land during the last few years—but not by much.

At the end of 1982, foreign holdings were reported at 13.5 million acres, or about 1 percent of all privately owned U.S. agricultural land. The most recent count, as of October 1984, found slightly more than 14 million acres under foreign ownership—1.1 percent of all privately owned agricultural land.

The difference: roughly a half million acres, and not all of this increase is attributable to transactions by foreign interests since 1982. Some of the foreign transactions were simply reported too late to be included in the 1982 total. Of course, the same qualification applies to preliminary 1984 data.

Figures for 1984 are from USDA's latest report on foreign ownership. The report was prepared by attorney Peter DeBraal and agricultural economist Alex Majchrowicz, both of the Economic Research Service. DeBraal and Majchrowicz highlight the following findings:

- 57 percent of all foreign-owned agricultural acreage is forestland; only 14 percent is cropland. The rest is pasture and other agricultural land.
- 83 percent of the foreign-held acreage is owned by corporations, and three-fourths of this land belongs to U.S. corporations. The foreign ownership disclosure law of 1978 requires U.S. corporations to file as foreign landholders if 5 percent or more of the shares in the corporation are owned by foreign investors (as of October 1984, this percentage requirement is adjusted upward). In other words, land does not have to be bought or sold to shift into, or out of, the foreign category. The land may be reclassified simply because foreign investors acquire a somewhat larger—or smaller—share in a U.S. corporation that owns farm, timber, or other types of agricultural land.
- Nearly half of all foreign-owned agricultural land is contained in just five states: Maine, Georgia, Texas, California, and Florida. Maine, with the largest foreign holdings of any state, has 21 percent of the U.S. total. Other than Maine, foreign investment is concentrated in the South and the West. Rhode Island is the only state without any reported foreign-owned agricultural land.
- In Maine, nearly 3 million acres, or 15.5 percent of the state's privately owned agricultural land, is listed in the foreign category. Four large timber companies own 95 percent of this land. Two of them are U.S. companies that passed the 5-percent mark in foreign shares. The two others are Canadian firms.
- The only other states where foreign ownership accounts for 3 percent or more of the privately owned agricultural acreage are Georgia at 3.4 percent, South Carolina at 3.3 percent, and Hawaii at 3.0 percent.
- Although the countries listed by the foreign investors may not reveal the actual origins of the investments, more than 80 nations are represented on the list of foreign owners. Canadian investments account for one-third of the foreign acreage total. Another 26 percent of the acreage is traced to owners in Hong Kong and the United Kingdom. When investments from West Germany and the Netherlands Antilles (Dutch West Indies) are added in, almost three-fourths of all foreign-owned acreage is covered.

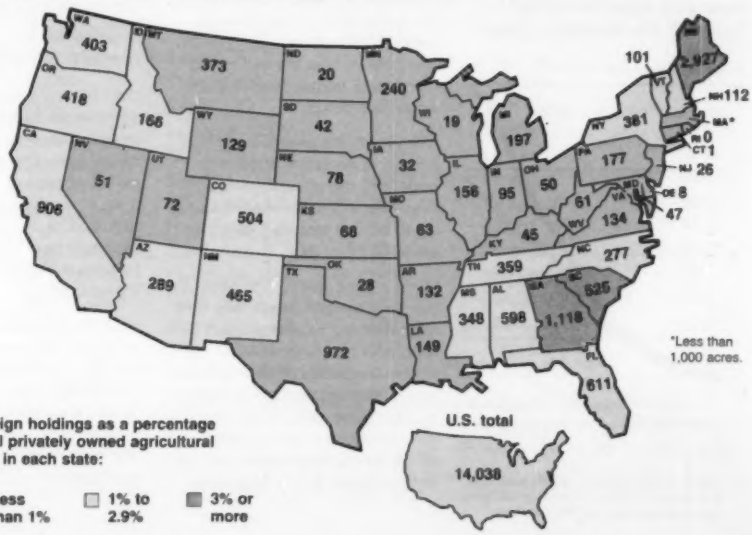
Since early 1979, foreign owners of U.S. agricultural land have been required by law to disclose their landholdings, as well as any subsequent acquisitions or dispositions, to USDA. Each year, all the forms are tabulated and then analyzed by the Economic Research Service.

The results have largely alleviated the original concerns of excessive foreign investment, at least on a national level, according to USDA's Peter DeBraal. Nevertheless, the filing requirements for foreign owners of U.S. agricultural land will continue, with some modifications that went into effect last October.

DeBraal says that foreign investors in U.S. agricultural land and land-owning U.S. corporations with foreign investors can obtain an explanation of these changes in the regulations by contacting: William A. Brown, ASCS/USDA, Rm. 4089-A South Bldg., P.O. Box 2415, Washington, D.C. 20013. His telephone number is (202) 447-6833. □

Rhode Island Remains the Only State Where No Foreign Holdings Are Reported

Foreign-owned agricultural land by state, in thousands (000) of acres:



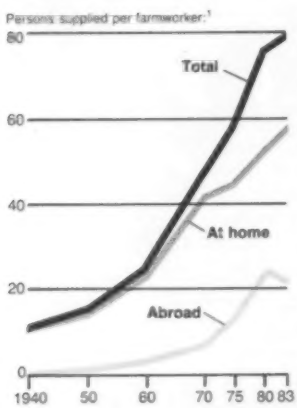
Increasing Productivity, Fresh from the Farm

For many decades, American farming has been a case of a dwindling minority supplying a growing multitude, and this trend continues amid structural change and rugged financial conditions in agriculture.

Economist Charles Cobb compiles farm productivity and efficiency statistics for USDA's Economic Research Service. According to his latest figures, it can once again be said that never before have so many owed so much to so few.

On average, he says, each person working on U.S. farms in 1983 supplied about 79 people with agricultural products, including food, fiber, and tobacco. That's up from around 76 people supplied per farmworker in 1980, and only 26 people per farmworker in 1960. Back in 1940, the American farmworker supplied just 11 people—himself, or herself, and 10 others.

Nearly 80 Now Enjoy the Fruits of the Farmer's Labor



[1]Farm products supplied include food, fiber, and tobacco; farmworker includes operators, unpaid family labor, and hired workers.

Cobb's broad definition of "farmworker" includes farm operators, family members who work on the farm, and hired employees. The number of people in these three groups has dropped from 7.1 million in 1960 to an estimated 3.5 million today, while the U.S. population has risen from 181 million to 235 million.

Of course, the growing multitude on the receiving end is not limited to Americans. Fewer and fewer people on U.S. farms are serving more and more people both here and abroad.

In 1983, the average American farmworker supplied food, fiber, or tobacco to an estimated 21.5 foreign consumers, or one-fourth of the total number of people served. In 1960, just one out of every seven customers was abroad; in 1940, the ratio was less than one out of twenty.

As instructive as these figures are, Cobb cautions that they cannot be viewed as rigorous measures of the number of people supplied per American farmworker. Instead, the figures provide a layman's yardstick to productivity change, based on a formula that takes into account the value of farm marketings, imports, export values, the U.S. population, and the estimated number of people working on American farms.

"Although the precision of the figures is certainly subject to question, the overall trend of dramatic increases would stand up to severe testing," Cobb says.

"This has occurred not because the farm people producing food and fiber are working faster or longer. It has happened because of the resources at their command, the technology, machinery, fertilizer, pesticides, and management knowhow that allow so much production from such a small group of people."

Rural Rails: End of the Line?

Abandoned rail lines crisscross rural America, a ghostly reminder of another era.

It's become a trend. Railroad companies have increasingly dropped unprofitable stretches of rail line. The procedure, called abandonment, requires only an application with the required documentation (ridership and use figures) to the Interstate Commerce Commission.

Most applications have been approved in recent years, according to USDA economist T.Q. Hutchinson of the Economic Research Service. But, Hutchinson says, the trend is showing some signs of slackening.

Rail line abandonments in 1984 amounted to 2,970 miles, compared with 3,270 miles abandoned in 1983, a drop of almost 10 percent. Between 1974 and 1983, Hutchinson says, the total length of line in service declined 28 percent, from 200,916 to 144,506 miles. That's an average of more than 5,000 miles a year.

Elimination of unprofitable lines has strengthened the financial situation of many railroad companies, he continues, but it has also reduced rail service to some farm communities and cut competition within the transportation sector.

"In the communities affected, rail line abandonment has tended to increase distribution costs for farm input suppliers and shippers," Hutchinson says. "In most instances, loss of rail service forces the use of trucks."

Gleanings

There's no doubt the strong U.S. dollar has hurt American exports, but the dollar may sometimes get too much of the blame. According to economist Mary Ponomarenko of USDA's Foreign Agricultural Service, a rising dollar does not necessarily price our products out of the market. Ponomarenko points out that high inflation rates in many importing nations have partly offset, or even completely overshadowed, the effects of the dollar's climb against these currencies.

. . . take the case of U.S. corn to Mexico. The average U.S. Gulf port price for American corn rose 15% between 1980 and 1984. But the appreciation of the dollar against the Mexican peso raised the price of U.S. corn in pesos by more than 700%—enough, probably, to discourage any purchases had it not been for Mexico's runaway inflation. Inflation raises the prices of all goods and services in the economy, so a 700% increase in the price of imported corn is high only if other prices in Mexico rose by a much smaller amount. After adjusting the U.S. corn price for changes in both the exchange rate and inflation, the "real" cost to Mexico for U.S. corn rose by 30% from 1980 to 1984.

. . . or consider the Korean example. Again, the U.S. dollar price for corn rose 15%, but the appreciation of the dollar jacked up the price in South Korean currency by slightly more than 50%. When inflation rates are also taken into account, however, the "real" price of U.S. corn to Korea rose by only 10%. South Korea's inflation rate had, in fact, more than compensated for the dollar's climb.

. . . trade analysts do not claim that we shouldn't worry about a strong dollar. Even in markets with high inflation rates, costs of U.S. products would be much more attractive without the sharp appreciation of the dollar. That, in turn, might encourage more imports, and it would almost certainly improve America's competitive position vis-a-vis rival suppliers.

. . . instead, analysts point to the Mexican and Korean examples to show how the price impact of the strong dollar can be greatly exaggerated if inflation rates are ignored. Both exchange rates and inflation rates must be considered, they say. The dollar's rise may have hurt more in some countries with relatively strong currencies but low inflation rates, such as West Germany, than in many less developed countries with weak currencies but high inflation.

Changes in U.S. Corn Prices to Mexico and South Korea

	Actual price change in U.S. dollars,[1] 1980 to 1984	Price change adjusted for exchange rates only	Price change adjusted for exchange rates and inflation
Price to Mexico	+15%	+737%	+30%
Price to South Korea	+15%	+52%	+10%

[1]Prices FOB Gulf.

When the more than 3,000 U.S. counties are ranked by the market value of agricultural products sold in 1982, California is well represented. Fourteen of the top 30 farm counties in the nation are located in California. Texas and Arizona have three each, Washington has two, and there's one county each from Colorado, Pennsylvania, Florida, Kansas, Iowa, Oklahoma, Delaware, and Wisconsin. Fresno County, Calif., leads the overall list, with nearly $1.5 billion in farm product sales. This figure is high enough to put the county ahead of several entire states. In fact, 18 states registered less than $1.5 billion in 1982 sales. Around three-fourths of Fresno's ag sales came from crop marketings. Major crops are cotton, grains, alfalfa, and a wide variety of fruits, vegetables, and nuts, including grapes, tomatoes, almonds, peaches, figs, melons, and apricots.

California Is Ripe with the Nation's Top Farm Counties

Counties are ranked by the market value of agricultural products sold[1]

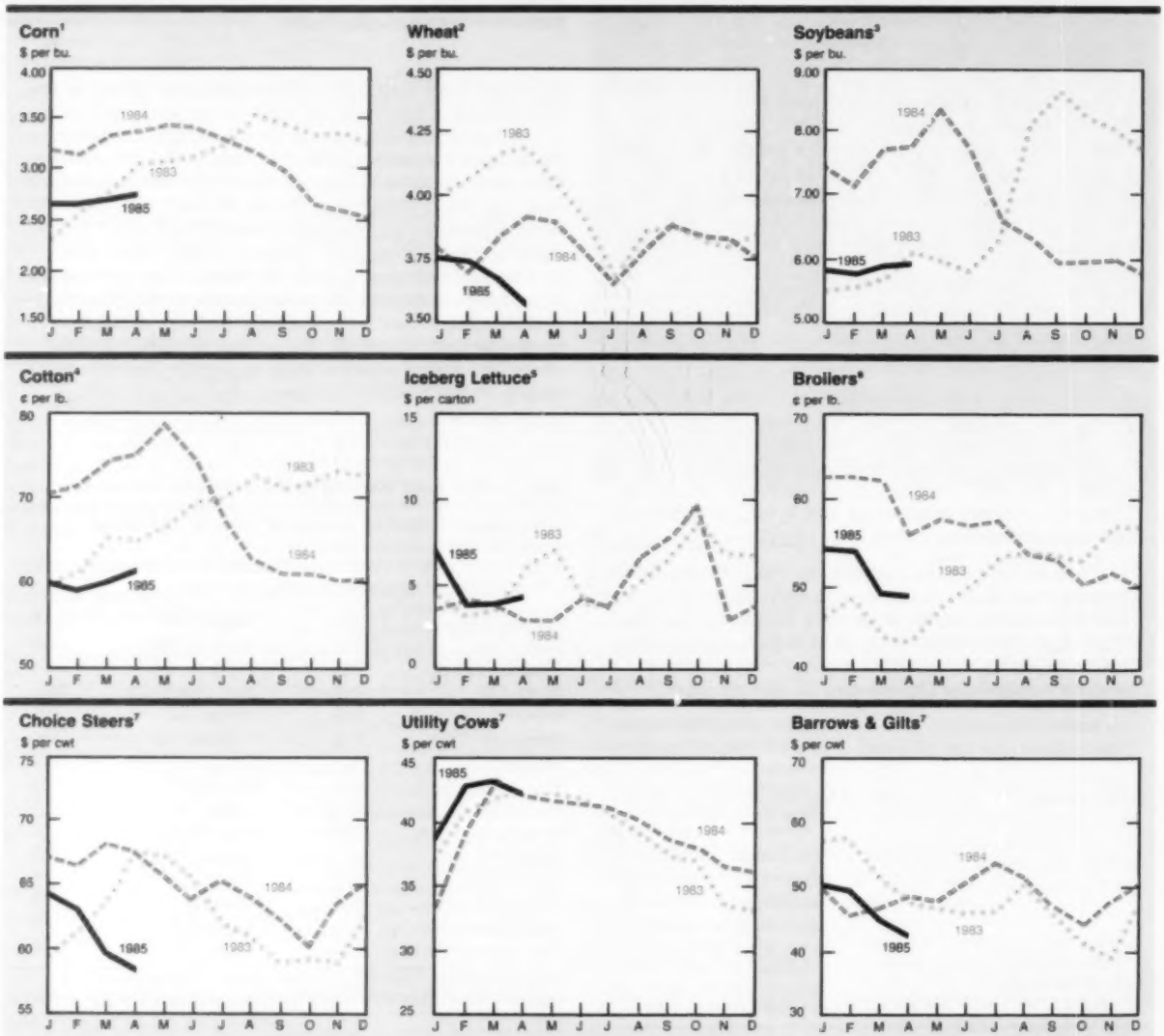
figures in millions (000,000)

Fresno, CA	$1,496	Kings, CA	$478
Kern, CA	1,074	Yakima, WA	468
Tulare, CA	963	Ventura, CA	403
Weld, CO	829	San Diego, CA	393
Imperial, CA	742	Yuma, AZ	355
Monterey, CA	738	Haskell, KS	344
Merced, CA	655	Pinal, AZ	324
Maricopa, AZ	628	Sioux, IA	323
Riverside, CA	619	Grant, WA	312
San Joaquin, CA	593	Parmer, TX	307
Lancaster, PA	575	Hidalgo, TX	285
Deaf Smith, TX	563	Texas, OK	284
Stanislaus, CA	555	Madera, CA	277
Palm Beach, FL	535	Sussex, DE	270
San Bernardino, CA	479	Dane, WI	267

[1]Data from the 1982 Census of Agriculture, courtesy of economists Virginia Getz and Robert Hoppe of the Economic Development Division, Economic Research Service.

Monthly Price Monitor

USDA's index of farm prices for April declined 1.5% from March and was 9.6% below its year-earlier level. Corn, soybean, and cotton prices rose slightly, while wheat, at $3.62 per bushel, slipped to its lowest point since October 1982. Meat animal prices declined. Broilers dropped below 49¢ for the first time since May 1983; choice steer prices dipped below $59 for the first time since December 1982; and barrows and gilts hit a 17-month low of $42.16 cwt. Except for lettuce, prices of all commodities shown were below year-earlier levels. Prices are monthly averages.



[1]No. 2 yellow, Central Illinois. [2]No. 1 HRW, Kansas City. [3]No. 1 yellow, Central Illinois. [4]SLM 1⅛" spot market price. [5]Standard carton 24's, California-Arizona. [6]Wholesale, New York. [7]Omaha.

Leading States in U.S. Agricultural Exports[1] Fiscal 1984

	1st	2nd	3rd	4th	5th	6th	7th	8th
	in millions of dollars (000,000)							
All products[2] U.S. total: $38.0 billion	Iowa $3,445	Illinois $3,279	California $2,656	Nebraska $2,178	Texas $2,164	Kansas $2,147	Minnesota $2,075	Indiana $1,594
Feed grains & products U.S. total: $9.1 billion	Illinois $1,751	Iowa $1,720	Nebraska $1,126	Indiana $849	Minnesota $747	Ohio $502	Kansas $440	Michigan $336
Soybeans & products U.S. total: $7.5 billion	Iowa $1,286	Illinois $1,232	Minnesota $701	Indiana $565	Ohio $484	Missouri $475	Arkansas $324	Louisiana $314
Wheat & products U.S. total: $6.8 billion	Kansas $1,190	North Dakota $777	Oklahoma $587	Washington $507	Montana $452	Texas $356	Idaho $326	Minnesota $301
Cotton & linters U.S. total: $2.4 billion	Texas $746	California $610	Mississippi $279	Arizona $239	Louisiana $165	Arkansas $100	Alabama $57	Tennessee $47
Unmanufactured tobacco U.S. total: $1.4 billion	North Carolina $694	Kentucky $195	South Carolina $146	Georgia $125	Virginia $114	Tennessee $77	Florida $23	Connecticut $19
Hides & skins U.S. total: $1.3 billion	Texas $184	Nebraska $165	Kansas $154	Iowa $107	Colorado $69	California $56	Wisconsin $45	Minnesota $40
Fruits & preparations U.S. total: $1.3 billion	California $638	Florida $256	Washington $110	Texas $50	Arizona $41	Michigan $27	Hawaii $26	Oregon $23
Live animals & meat[3] U.S. total: $1.2 billion	Kentucky $173	Texas $125	Iowa $122	Nebraska $116	Kansas $101	California $47	Colorado $45	Illinois $43
Vegetables & preparations U.S. total: $998 million	California $201	Washington $141	Idaho $112	Michigan $109	North Dakota $71	Nebraska $58	Colorado $55	Florida $43
Rice U.S. total: $897 million	Arkansas $352	California $208	Louisiana $132	Texas $124	Mississippi $58	Missouri $23	—	—

[1]State origins of exports are not monitored as products move into export channels. The above statistics are estimates based on each state's contribution to U.S. production or marketings of individual commodities during fiscal 1984 (Oct. 1, 1983-Sept. 30, 1984). For example, if Iowa produced 17% of the 1983/84 U.S. soybean crop, it is assumed that 17% of U.S. soybean product exports originated in Iowa. Stock levels within states, marketing ratios, and other available data are used to adjust these figures, where possible, to avoid distortions. [2]Includes commodities not listed in this table. [3]Includes breed and race horses, excludes poultry.

Chart data were provided by economist Steve Milmoe of the International Economics Division, Economic Research Service. To compare the above figures with state export data for fiscal 1983, see the August 1984 FARMLINE.

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